2021

Improving the accuracy of forest health data collection

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Executive Summary

Data collection is an integral function of the Forest Health Division of the South Carolina Forestry Commission. This data allows us to report trends and may be used to form predictive models. Data collection relies on surveys, both from the air and the ground, as well as site visits when a landowner or forester contacts us with a potential issue. Project foresters are a potential asset in knowing what is going on around the state; they are dispersed throughout the state and they receive calls on forest health issues from landowners. We noticed over the last five years that a small percentage (18%) of the project foresters contacted us concerning forest health issues. We suspected that the other project foresters felt comfortable identifying and suggesting control measures against pests and diseases they encountered when they visited landowners and the Forest Health Division was not contacted or informed about these issues. We conducted a survey of our project foresters to discover if this was true. Fifteen of the 17 project foresters responded to our survey. Their responses indicated that the majority did not report forest health issues to the Forest Health Division, even though most did record this information for their own reports. Furthermore, they are willing to report this data in the future. In the coming year we plan to collect this data from the project foresters and compare it to the data we collect to look for counties where we missed pest or disease issues during the reporting period.

Problem Statement

The Forest Health Division of the South Carolina Forestry Commission is responsible for measuring the impacts that pests and disease have on our forests, promoting management tools

that prevent or mitigate forest health issues, and meeting with the public to identify pests and diseases. We rely on a number of activities to measure the impacts of pests and diseases; surveys, either aerially or on the road, that look for indications of issues, and calls from landowners and project foresters who see issues. This data not only allows the forest health team to report the pest and disease problems from the previous year, but, if accurate, can be studied to for patterns that may help predict future outbreaks. For instance, prolonged summer droughts can lead to extensive mortality in pines and outbreaks of *Ips* engraver beetles, or wind damage in certain parts of the state can lead to an uptick of oak wilt disease. When we experience drought or wind damage, we can let the public know what to expect and recommend practices to prevent the damage.

Over the last five years we noticed anecdotally that the majority of reports from project foresters came from the same two or three people and often they wanted us to visit the site to help them with identification. This led us to believe that a number of project foresters weren't reporting forest health data, either because they didn't collect it or they felt comfortable and knowledgeable enough to diagnose these issues on their own (we can chalk that up to good training on the part of the forest health division). If most project foresters are not reporting forest health issues to the forest health division we are missing important historical data on the incidence and location of these issues.

Data Collection

We needed to determine if project foresters do collect data on forest health issues, and, if they do collect such data, what is the nature of the data they are collecting, and whether they would be

willing to share that data with the forest health division. There are 17 project foresters (15 currently employed) and so we thought a survey was the best way to collect this information and answer these questions.

This project proposes:

1. To survey current project foresters to determine whether they collect data related to forest health and if they are willing to share that data with the forest health division
2. Increasing communication between project foresters and the forest health division emphasizing the importance of the forest health data that project foresters collect

Data Analysis

We conducted a survey to find out how many of our project foresters were collecting pest and disease information from the counties they covered and whether they report this data to the forest health division.

The survey questions included:

1. Do you collect pest and disease data when you visit landowners with these issues?
2. If so, what kind of data do you collect? (Select all that apply)
    a. The kind of pest
    b. The extent of the infestation/infection (acres or number of trees)
    c. Other (specify)

3. Do you currently share this data with the Forest Health Division? (select the most appropriate reply
    a. Always

b. Usually
c. Sometimes
d. Rarely
e. Never
f. Only when I can't identify the problem

4. If not, would you be willing to share this data with us on a quarterly basis?

Fifteen of the project foresters responded to the survey for a response rate of 100% (there are 17 project forester positions but only 15 were filled while the survey was active). The survey data is presented in Appendix A. In short, most project foresters already collect the data we need and all of them would be willing to share. Only two respondents did not already collect this information, but all of them were willing to collect this data and share it with the forest health team.

Implementation Plan

In the coming year we plan to request that the project foresters share their forest health data from the past three months, including the identification of the disease or pest, the county where it was located, and the extent (number of trees/acres affected). Each quarter we will compare forest health data that we have collected from our surveys and calls from landowners to what we receive from the project foresters over the same time period. We will look especially for discrepancies between the counties we record pests in and counties the project foresters are reporting pests in. At the end of the year we will evaluate how much more data is collected by the project foresters than the forest health lab.

Something that does need to be addressed is the process of collecting the data from the project foresters. It would be preferable to have a data repository of what the project foresters record than to request the data quarterly. They already send reports to the forest management division; if these reports could be available in a reports clearinghouse, it would be easier to integrate into forest health reporting and facilitate the monitoring of forest health issues in South Carolina. In the coming year we will discuss this with the forest management section (the group the supervises the project foresters) to see if we can develop a process for data sharing that is not over burdensome to the project foresters but allows the forest health division to access the data they need to evaluate forest health issues in a timely manner as opposed to on a quarterly basis.

Commented [SN1]: Much better!

Evaluation Method

Forest health data (pest identification, county, extent/acres/number of trees) will be requested from project foresters on a quarterly basis and compared with data collected by the forest health division; are the same pests identified in the same geographical areas over the given time period or are there substantial differences between what forest health collects and the project foresters collect. If there are differences, we will continue to request data from project foresters on a quarterly basis and include that in our reports.

Commented [SN2]: Just if there are differences? I would think that you would want it anyway.

Summary and Recommendations

Our project foresters represent an additional tool in collecting forest health data. Our survey indicates that they are underused in this capacity and would greatly increase the accuracy of the data they collect concerning forest health. We propose to compare the data the project foresters

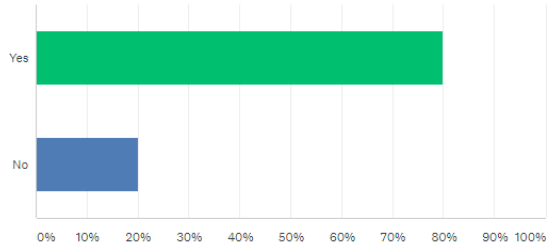
collect (pest/disease by county) to the data we (forest health) collect to identify gaps. Our analysis indicated that there is a need for increased communication between project foresters and the forest health division to highlight the importance of this data. We train them to identify common pests and diseases but we do not stress how important it is for us to know when and where these pests are occurring in our state. We may also need to develop a system where project foresters reports are made available to the forest health division, so we don't have to request this data every three months.

Appendix A.

Survey Data

Do you collect pest and disease data when you visit landowners with these issues?

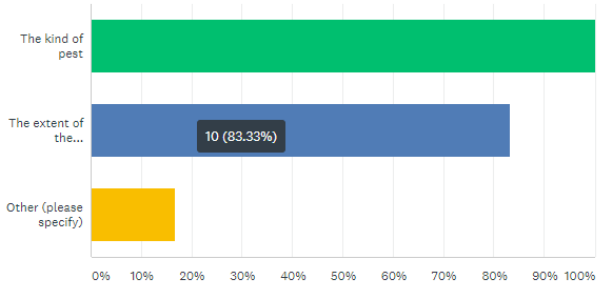
Answered: 15 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	80.00%	12
No	20.00%	3
TOTAL		15

If yes, what kind of data do you collect? (Select all that apply)

Answered: 12 Skipped: 3



ANSWER CHOICES		RESPONSES	
The kind of pest		100.00%	12
The extent of the infestation/infection (acres or number of affected trees)		83.33%	10
Other (please specify)	Responses	16.67%	2
Total Respondents: 12			

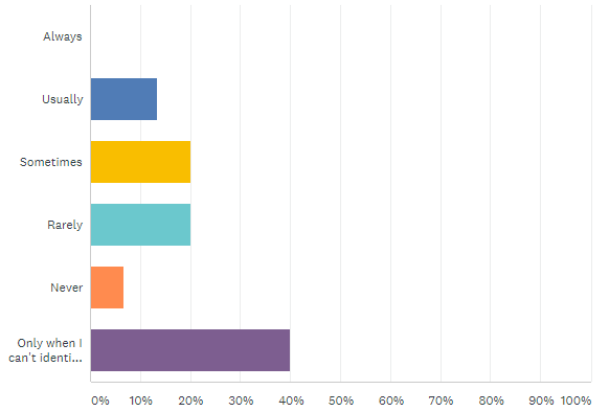
Showing **2** responses

Observations samples
11/25/2020 1:16 PM View respondent's answers Add tags

If it is still active
11/24/2020 9:58 AM View respondent's answers Add tags

Do you currently share this data with the Forest Health Division? (select the most appropriate reply)

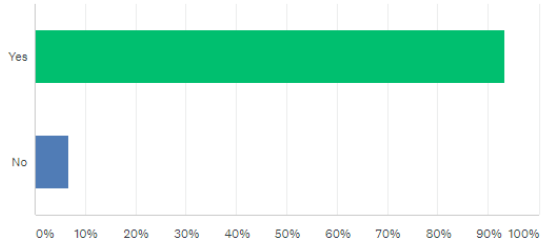
Answered: 15 Skipped: 0



ANSWER CHOICES	RESPONSES	
Always	0.00%	0
Usually	13.33%	2
Sometimes	20.00%	3
Rarely	20.00%	3
Never	6.67%	1
Only when I can't identify the problem myself	40.00%	6
TOTAL		15

If not, would you be willing to share this data with us on a quarterly basis?

Answered: 15 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	93.33%	14
No	6.67%	1
TOTAL		15